

REMARKS/ARGUMENTS

Claim Amendments

Claim 1 has been amended to delete the words, "multistage" and to state that the feed/concentrate side has an upstream portion and a downstream portion, the cross-sectional area of the downstream portion being less than the cross-sectional area of the upstream portion. This amendment is supported by, for example, page 3, line 23 to page 4, line 6, of the application. Claims 23-37 are withdrawn. Claims 1-22 and 38-58 are pending. The Applicants submit that no new matter is added by these amendments.

Elections/Restrictions

The Applicants confirm the election of Group 1, claims 1-22 and 38-58.

Claim Rejections – 35 U.S.C. 103

Claims 1-6, 17-20, 38-43 and 55-56 were rejected as being obvious over Holland et al., US Patent No 4,855,058 ('058). The Applicants respectfully traverse this rejection and submit that the claims are not obvious.

Claims 1 and 38 both recited a range of superficial velocity of the feed over the last portion of membranes on the feed/concentrate side of the module. The Office Action states that '058 teaches that reduction in feed velocity can be achieved by tapering spacers in thickness or width. The Office Action then suggests that one skilled in the art would therefore be taught to achieve a particular fluid velocity. The Applicants submit that this conclusion does not follow. The reference to tapering a spacer in '058 does not suggest any particular velocity. In order to establish a prima facie case of obviousness of the claimed range, the Office Action would need to establish that (a) '058 teaches a range of superficial velocities over the last part of the membranes on the feed/concentrate side of a module that overlaps with the claimed range or (b) that '058 teaches a particular superficial velocity over the last part of the membranes on the feed/concentrate module, teaches that that superficial velocity is result-effective in the context of

the Applicants' claims and that the claimed range is merely an optimization within the conditions of '058 or through routine experimentation. The Office Action does not establish the required elements for prima facie obviousness according to either method described above, or even that '058 discloses any particular superficial velocity over the last part of the membranes on the feed/concentrate side of a module.

Claims 2-6, 17-20, 39-43 and 55-56 are not obvious for at least the reasons given in relation to claims 1 and 38. However, the Applicants make the following additional comments in relation to some of these claims.

Regarding claims 3 and 40-41, column 4 second paragraph of '058 teaches against providing multiple elements. Further, providing multiple modules according to example V of '058 will not satisfy part (c) of claims 1 or 38 even if the module is part of a collection of series or parallel connected modules.

Regarding claims 5, 6 and 40-43, discussion in '058 of designing a feed channel to reduce velocity changes does not make the particular claimed ranges of minimum superficial feed side velocity obvious for reasons similar to those discussed in relation to claims 1 and 38.

Regarding claims 19, 20, 55 and 56, the general discussion of '058 fails to demonstrate a prima facie case of obviousness of the particular parameters claimed for reasons similar to those discussed in relation to claims 1 and 38.

Claims 7-16, 21-22, 44-50, 52-54, 57 and 58 were rejected as being obvious over '058 as applied to claims 1 and 38 and further in view of Shippey '301 and Uhlinger '556. For the reasons given above, the Applicants submit that the application of '058 to claims 1 and 38 fails to establish a prima facie case of obviousness. The Applicants submit that claims 7-16, 21-22, 44-50, 52-54, 57 and 58 are not obvious at least for this reason but will provide further submissions in relation to the rejection of some of these claims below.

The Office Action states that reference '301 relates to a spiral wound membrane. Applicant submits that '301 does not disclose a spiral wound membrane but rather a desalination cell 36 which, as described at col. 4, lines 14-20 and shown in Figure 1A, is not a spiral wound membrane.

Applicants submit that there is no suggestion or motivation in the references to combine their teachings. Additionally, Applicants submit that the combined teachings of '301 and '058 do not teach or suggest all of the limitations claimed. Regarding claims 7, 21, and 44 or 57, neither '301 nor '058 teach contacting with air to increase the dissolved oxygen content of feed water. Neither '301, nor '058 teach holding the cleaning chemical in the feed/concentrate side module for a reaction time. Rather, '301 teaches a flushing cycle which has a continuous flow through the reverse osmosis machine (col. 8 lines 25-34).

Regarding claims 8, 9, 45 and 46, the office action states that reference '556 discloses a holding tank that collects permeate, and has a level control means for operating the feed pump based on the permeate level in the tank. '556 teaches a membrane system which includes a nanofiltration (NF) separation element and a reverse osmosis (RO) element, which are operated in a variety of ways according to a variety of signals. The Office Action has not established that this system operates as in the claims nor that the peculiar system of '556 is related to a process as described in claims 1 or 38.

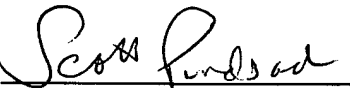
Regarding claims 10-14 and 44-51, '301 fails to describe a step of holding the cleaning chemical and so fails to provide all of the parts of the claim.

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For the reasons above, the Applicants submit that the claims are allowable.

Respectfully submitted,

Husain et al.

By 

Scott Pundsack
Reg. No. 47,330
Tel: (416) 957-1698